



WESTPORT COMMUNITY SCHOOLS

Office of the Superintendent

March 18, 2014

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Ms. Kimberly N. Tisa, PCB Coordinator
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United State Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100 (OSRR07-2)
Boston, MA 02109-3912

Dear Ms. Tisa:

Attached please find the Feasibility Study conducted by Fuss & O'Neill regarding the Westport Middle School. As you are aware, while participating in a window replacement Green Project, PCB's were discovered in August 2011. Since that time, the Westport School Committee has been committed to finding a remedy in the best interest of all. Air and wipe samples are conducted quarterly. A Statement of Interest for renovations was submitted to the Massachusetts School Building Authority last year but was denied. We will be submitting another Statement of Interest this year with the hopes of moving all our students out of the middle school as soon as possible. Also, the School Committee voted to move the grade five students out of the middle school and into the elementary school next school year. Please let me know should you need further information.

Thank you for your support.

Sincerely,

Dr. Ann Dargon
Interim Superintendent

AMD/kla

Enc:

Polychlorinated Biphenyls (PCBS) Source Removal Project Report and Management Plan

Westport Middle School
400 Old Colony Road, Westport, Massachusetts

Westport Community Schools
17 Main Road, Westport, MA

April 1, 2013



FUSS & O'NEILL
EnviroScience, LLC

Fuss & O'Neill EnviroScience, LLC
50 Redfield Street, Suite 100
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FUSS & O'NEILL
EnviroScience, LLC

April 1, 2013

Dr. Carlos Colley
Superintendent
Westport Community Schools
17 Main Road
Westport, Massachusetts 02790

**RE: Polychlorinated Biphenyls (PCBS) Source Removal Project
Report and Management Plan for Westport Middle School
400 Old Colony Road, Westport, Massachusetts**
Fuss & O'Neill EnviroScience, LLC No. 20080788.A6E

Dear Dr. Colley:

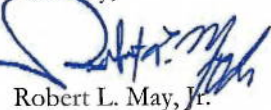
Enclosed please find the final report for Polychlorinated Biphenyls (PCBS) Source Removal Project Report and Management Plan for the Westport Middle School located in Westport, Massachusetts. The Waste Shipment Record (WSR) documents have been included with the report. This documentation should be placed at the central location where the school asbestos management plans are stored. In addition, the report should be transmitted to the EPA Region 1 coordinator to fulfill request for information in reference for the work performed between May and December 2011.

This report is the requested submittal and shall be submitted upon your review and acceptance to the following:

Ms. Kimberly N. Tisa, PCB Coordinator
Remediation and Restoration II Branch
United States Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100-(OSRR07-2)
Boston, MA 02109-3912
Telephone (617) 918-1527

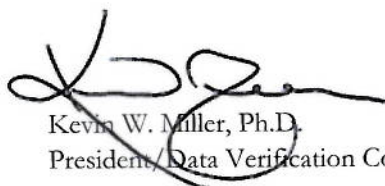
If you have any questions regarding the enclosed report, please do not hesitate to contact me at (617-282-4675), extension 4701. Thank you for this opportunity to have served your environmental needs.

Sincerely,



Robert L. May, Jr.
Vice President

RLM/ftc
Enclosure



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1 Executive Summary

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained to provide inspection, testing, planning, and on-site project monitoring for work involving the removal of Polychlorinated Biphenyls (PCBs) in source building materials.

Westport Community Schools was selected as the recipient of funds from the Massachusetts School Building Authority (MSBA) for a Green Repairs Project at the Westport Middle School. The Green Repair Project was to include replacement of existing metal window systems and exterior door systems.

During the planning portion of the project, a due diligence inspection involving the testing of building materials for potential hazardous materials was conducted in May 2011. A summary report was prepared which identified building materials associated with the window systems and door systems to contain PCBs as source PCB Bulk Product Waste exceeding U.S. Environmental Protection Agency (EPA) concentrations of 50 ppm. In addition to PCBs the materials also contained asbestos.

The discovery of PCBs which exceed EPA maximum allowable of 50 ppm is considered a prohibited or an "unauthorized use" of PCBs according to the Toxic Substance Control Act (TSCA) and therefore subject to the requirements that the materials be immediately removed in accordance with EPA regulation 40 CFR 761.

The Green Repair project could not occur until the summer of 2012 due to required planning and length of time to manufacture and receive replacement window systems which would not allow for immediate response to replace the windows and doors and address the PCBs identified in the caulking and glazing compounds. Additional testing of adjacent substrates, soil, indoor air, and wipe sampling was performed in June 2011. Intent of adjacent porous surface sampling and soil sampling was to determine additional remediation work that would be required during replacement of window and door systems to be included in an overall project budget.

Indoor air sampling and wipe sampling was required due to the delay in performance of any work until 2012 and proposed occupancy of the school building in September 2011. Also, the structure of the building is concrete frame and removal of framework if contaminated by a source of PCBs would require potential use of encapsulation techniques under a Risk Based Disposal Plan in accordance with 40 CFR 761.61 (c).

Adjacent substrates including porous brick and adjacent concrete were sampled in June 2011. Adjacent materials were determined to contain PCBs within a range of 0.12 ppm to a high of 39 ppm up to 1 inch depth into substrate at caulking joints. A total of 21 samples of surface soil were collected along the building perimeter on all four sides of the structure and limited location determined to contain PCB concentrations above 1 ppm. A total of 20 wipe samples were collected adjacent to windows and doors on non-porous floor surfaces and porous window sill surfaces. Non-porous floor surfaces ranged from a low of 0.21 micrograms per wipe to a high of 110 micrograms per wipe. Porous brick window sills ranged from a low of none detected (ND) to a high of 2.5 micrograms per wipe.

Indoor air sampling was performed utilizing Method T0-10A homolog analysis for PCBs. In total 14 locations were sampled. The results were compared to EPA Public Health Levels of PCBs in School

Indoor Air for school age children 6 <12 years of age which is 300 ng/m^3 . The results identified 8 of the 14 samples exceeded this Public Health Level with a range of None Detected to a High of 990 ng/m^3 and average was 432 ng/m^3 . School had been dismissed for the summer recess at the time sample results were received and teachers and custodial staff were removed from the building at that time and not permitted to occupy the building.

The information was transmitted to the EPA Region 1 coordinator via telephone call on June 24, 2011 after presented to the Westport Permanent School Committee meeting on June 23, 2011. EPA Region 1 coordinator recommended proceeding with attempts to identify additional PCB Bulk Product material inside the building due to elevated concentrations of PCBs in indoor air.

On June 27 and 29, 2011 limited additional potential sources of interior PCB Bulk Product Waste were sampled. Inspection involved a review of unit ventilator units at walls, ceiling and roofs for potential caulking, sealants or other suspect PCB items or materials. Identified suspect materials included locations of interior caulking at columns, a foam filler at concrete beams and columns, mastic/felt above "tectum" ceiling panels, white plaster material at air intake at unit ventilators, and homasote insulation at roof air intake ducts. Of the sampled materials regulated concentrations of PCBs above 50 ppm were identified associated with interior caulking at columns, the foam filler at concrete beams and columns, mastic/felt above "tectum" ceiling panels. The significant sources of PCB Bulk Product included more than 70,000 square feet of ceiling mastic and 6,000 LF of caulking both interior and exterior to the building.

The discovery of interior sources of PCBs prompted a site meeting with EPA Region 1 Coordinator to discuss next steps in planning process and potential occupancy of school in September 2011. The site meeting occurred on July 14, 2011. The significant sources of PCBs at Westport Middle School prompted several challenges to occupy the building in September 2011 and the Westport Community Schools Superintendent began identification of alternative space options which included split schedules at Westport schools, use of other School districts, abandoned buildings, and portable classrooms as alternatives to occupancy of the Westport Middle School.

A pilot project was planned and work was conducted by Triumvirate Environmental Inc. (Triumvirate). The pilot project included an action plan in several representative rooms of the building to physically remove materials to better understand the feasibility of conducting the work, associated time and cost to complete, and identify, with post removal air samples, the effectiveness of reducing indoor air quality to acceptable ranges.

Results of the pilot project determined the effectiveness of reducing indoor air concentrations by removing most of the identified interior sources of PCBs and limited removal of exterior caulking materials around windows beneath unit ventilator intake points. Indoor air sample results identified post removal indoor air concentrations to be close to or lower than 300 ng/m^3 .

A special meeting of the Westport Permanent School Committee was held to identify the results of the pilot project and to discuss anticipated costs for replication of process throughout the school building on August 2, 2011. Budget costs were prepared by Triumvirate. A meeting was held with EPA Region 1 Coordinator to discuss the plans to move forward with source removal of identified PCB Bulk Product materials. EPA Region 1 Coordinator confirmed no formal submission of a plan was required. Caution was offered by EPA Region 1 Coordinator that this process is only the first step with the only goal of

potentially occupying the building in September 2011 and that long range plans and goals for continued monitoring and eventual elimination of all PCB Bulk Product Materials and addressing adjacent PCB Remediation Wastes must be developed by Westport Community Schools.

The project to begin removal of interior and exterior identified PCB source materials as PCB Bulk Product Waste began on August 11, 2011. The Contractor was Triumvirate. Triumvirate utilized as sub-contractors Dec-Tam Corporation (Dec-tam) as well as LVI Services (LVI) to assist with the project and maintain the goal of opening school on September 6, 2011. The scope of work included the complete removal of all accessible interior "tectum" ceiling panels and the majority of the associated asbestos and PCB containing mastic/felt on concrete ceiling deck. Work also included complete removal of all PCB Containing interior caulking, all interior PCB containing foam filler, and removal of all exterior PCB Containing window caulking. PCB Containing caulking was removed from interior and exterior door systems to the height of the doors. Interior PCB Containing window glazing compound could not be removed and will need to be part of a future window replacement project; so as an interim measure work included encapsulation of the caulking. Initial phases of work included a thorough cleaning of exterior of all room furnishings utilizing HEPA vacuums and wet wiping to clean potentially PCB laden dust. Once clean wipe samples from representative locations were collected, the furniture was tagged and moved to the gymnasium or exterior storage trailers by a moving company. Locations of carpeting were removed where present with the exception of Office areas and media center offices. Once rooms were emptied, a full negative pressure enclosure was established in accordance with requirements of 453 CMR 6.00 for asbestos removal. Tectum and associated mastic adhesives were removed from all classrooms as well as program spaces such as the cafeteria and media center. Once completed, areas were final cleaned and the ceilings encapsulated with an asbestos encapsulant. Final air clearance samples by Transmission Electron Microscopy (TEM) were collected on rush turnaround to clear the containments. Once final air clearance was achieved for asbestos the work area barriers (wall polyethylene sheeting) were partially removed to facilitate access to interior PCB materials which did not contain asbestos. These materials included interior foam filler, interior caulking and interior window glazing compound. These materials were then removed with the exception of interior window glazing which was encapsulated as an interim measure with a new layer of caulking to conceal the glazing compound.

While interior work was occurring workers removed all of the exterior PCB containing caulking at windows and lower accessible portions of door systems. Containment barriers included use of polyethylene sheeting on interior side of windows and door systems, covering of ground surfaces, and sealing of the unit vents. Workers wore appropriate personal protective equipment. Exterior caulking materials also contained asbestos and required acceptable visual inspection by licensed asbestos project monitors prior to re-caulking of joints.

Upon completion of work to remove or encapsulate source materials, work areas were thoroughly cleaned and representative wipe samples for PCBs were collected within each room on non-porous floors and porous window sills. HVAC systems were cleaned, balanced and run for a period of 12 hours in addition to continued ventilation with HEPA equipped negative air filtration devices. Post removal indoor air samples were collected for analysis using Method TO-10A Homolog. Samples were collected in all classrooms and function spaces. Work was conducted in phases as each work area was completed.

Results of indoor air samples in general were initially below EPA guidance of 300 ng/m^3 . If a room or group of rooms were above the guidance criteria, the rooms were re-cleaned and ventilated for a period

before being re-sampled. On September 6, 2011, all classrooms and the Media Center, with a few exceptions, were below the EPA guidance and school opening was allowed on September 8, 2011 after a two day delay to allow maintenance staff and teachers time to prepare rooms for use. Areas which did not initially fall below EPA guidance included Cafeteria, Kitchen area, Office area and a few isolated rooms off the media center, and Room 24. These areas were subjected to additional cleaning and ventilation for several weeks resulting in opening of the Cafeteria, Kitchen and most offices.

Included in this report and management plan is information on some alternatives that Westport Community Schools is considering for long term future plans for the school building. It is recognized by Westport Community Schools that the project undertaken is a first step to eliminate much of the identified sources of PCBs to reduce indoor air concentrations and that full abatement and remediation of PCBs has not been achieved. The first charge of the project was to safely occupy the school in September 2011 in order to begin process of long range plans.

On-going routine cleaning by the school system is occurring with purchased HEPA vacuums and quarterly monitoring of indoor air has been conducted through the school year. The goal of the project, though a significant cost to Westport Community Schools and the Town of Westport, were met to safely occupy the building to conduct required educational programs during school year 2011/2012.

2 Introduction

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained to provide inspection, testing, planning and on-site project monitoring for work involving the removal of Polychlorinated Biphenyls (PCBs) and asbestos identified in building materials.

Westport Community Schools was selected as the recipient of funds from the Massachusetts School Building Authority (MSBA) for a Green Repairs Project at the Westport Middle School. The Green Repair Project was to include replacement of existing metal window systems and exterior door systems.

The project team included the following:

EPA Region 1 Coordinator

Westport Community Schools (WCS)

Westport Permanent School Committee (WPSC)

Owner's Project Manager: Pinck & Company, Inc. of Boston, MA (Pinck)

Architect: CGKV Architects of Cambridge, MA (CGKV)

Environmental Consultant: Fuss & O'Neill EnviroScience, LLC of Boston, MA (EnviroScience)

2.1 Background

In May 2011, during preparation for a window replacement project being performed for the Green Repair Program administered under the MSBA, samples of window caulking, window glazing, and door caulking were collected and analyzed for asbestos and polychlorinated biphenyls to determine if these compounds were present in the building materials. The samples were collected by EnviroScience on behalf of the project architect, CGKV.

A summary report for the initial sampling was prepared, dated May 25, 2011, which identified building materials associated with the window systems and door systems to contain PCBs as source PCB Bulk Product Waste exceeding U.S. Environmental Protection Agency (EPA) concentrations of 50 parts per million (ppm). In addition to PCBs, the materials also were determined to be asbestos-containing materials (ACM). The identified concentrations of PCBs, as Aroclor 1254, were present in caulking materials associated with windows and door systems. A total of 12 samples of potential PCB Bulk Product Waste materials were collected. Concentrations of PCBs for window caulking reached significant concentrations of between 190,000 ppm and 270,000 ppm. Exterior Door caulking ranged from 110 ppm to 240,000 ppm. Interior door caulking ranged from 19 ppm to 1,500 ppm and interior window glazing compound ranged from 16 ppm to 80 ppm.

The discovery of PCBs which exceed EPA maximum allowable concentration of ≤ 50 ppm is considered a prohibited or an "unauthorized use" of PCBs according to the Toxic Substance Control Act (TSCA) and therefore subject to the requirements that the materials be immediately removed in accordance with EPA regulation 40 CFR 761. TSCA is a strict liability statute, and there is no requirement that a violator's conduct be willful or knowing for it to be found in violation of TSCA or its implementing regulation. PCBs are a synthetic chemical that were applied to products due to their resistive, insulating, and softening properties including low flammability, fire resistance, chemical stability, electrical insulation, durability, resistance to degradation and use as a softener and plasticizer. They were widely used in dielectric fluids (i.e. for transformers, capacitors, fluorescent light ballasts), plasticizers, caulking, adhesives/mastic, sealants, paints, inks, dyes, PVC coating for electrical wire and components, floor finishers, lubricating and cutting oils, and many other products. Due to concerns about the toxicity and persistence of PCBs, in 1979 PCBs were essentially banned for use in the United States.

2.2 Building Description

The Westport Middle School is located at 400 Old County Road in Westport, Massachusetts 02790. The school was originally constructed in 1969 and is approximately 116,000 SF. Last renovation to the school building was in 2003. The building is two stories plus a basement level where mechanical room and boilers are located. The gymnasium and auditorium are two stories in height. The following are some general details on the construction of the school:

- The building is cast-in place reinforced concrete frame consisting of concrete columns and beams with poured in place concrete floor and roof slabs.
- The exterior finish materials include brick veneer and exposed concrete framing.
- Window systems are metal frames with interior sills of brick, wood, or plastic.
- Door systems are metal frames and metal doors, many with transom windows and sidelights.
- Interior walls are plaster or sheetrock with exposed concrete columns and beams and some areas of exposed interior brick including cafeteria, media center, auditorium, gymnasium and office areas.
- The floor finishes within the building are primarily vinyl floor tile, with carpet present in the office areas, media center, teacher's lounge and few classrooms.
- The hallways, offices and portions of the media center, cafeteria and kitchen, have dropped ceilings which are "tectum" lay-in panels.

- The majority of the remaining building has exposed “tectum” panels which are at the ceiling directly beneath the concrete slab of floor or roof above. These panels were installed during forming of the concrete floor slabs and have a water-proofing mastic between the panels and concrete slab above.
- The lighting is primarily overhead florescent lights located within dropped ceilings or hanging beneath “tectum” ceilings.
- Air heating and ventilation within each classroom is provided by individual unit ventilators original to the building which have a shared air intake typically between lower and upper level floors of the building.
- Separate HVAC systems are present in each of the cafeteria, media center, gymnasium, auditorium and select second floor classrooms.
- Hallways and office areas are provided with fresh air ventilation only.
- The building has six internal stairwells for circulation, five of which lead directly to the building exterior. Ceilings within the stairwells at upper level are “tectum” panels.
- The building is accessed from multiple levels based on topography of the land around the building.
- The exterior has concrete paving, sidewalks, and plaza. Many areas have exposed grass and soil with minimal plantings around the building.

A locus map, showing the geographical location of the school, is presented in *Figure 1*.

2.3 PCB Actions Time-Line

The Westport Middle School project started with the initial site characterization in May 2011. The time line and key events involved in the project are itemized herein. It should be noted that many meetings with EPA Region 1 coordinator were held including two on site visits to review conditions during the initial planning stage of the project.

May 25, 2011 Hazardous Material Report Initial Test Results

Fuss & O'Neill EnviroScience (EnviroScience) issues their hazardous material inspection reports for the proposed replacement work at the three school buildings that are part of the Green Repair Program. Window replacement proposed at the Middle School therefore window caulk & glazing compound was tested for Hazardous materials. PCB's in concentrations higher than EPA regulation found in:

- Interior door caulking*
- Interior window glazing*
- Exterior door caulking*
- Exterior window caulking*

**Materials also contain asbestos.*

June 2, 2011: Meeting with Westport Community Schools (WCS)

Pinck & Co & EnviroScience meet with WCS to review 5/25 PCB report and discuss next steps. EnviroScience authorized to proceed to next round of testing EnviroScience outlines necessary steps to test adjacent substrates to determine remediation wastes for materials in contract or potentially contaminated by PCBs. These include masonry, concrete, soil, interior dust and air. EnviroScience is authorized to process to next round of testing.

June 6 to June 14, 2011 Sampling of Adjacent Materials and Surfaces and Interior Air

EnviroScience takes samples of exterior materials adjacent to window caulking, soils and concrete below the windows & doors, Interior Wipe samples adjacent to windows and doors and interior air samples at random locations around the building. Sampling work takes several days and test results take 5 days to a week to come back from Laboratory.

June 14, 2011 Ext Bulk Substrate Materials and In Wipe Test Results

Tests show PCB concentration in adjacent masonry and concrete, and soil and concrete paving below windows above EPA threshold for high occupancy building. PCB contamination also discovered in wipe samples at interior sills and interior floors.

June 17, 2011 Interior Air Sample Results

Lab analysis of interior air samples show PCB concentrations above EPA guidelines for children 6 to 12 years old at 8 of 13 locations tested.

June 23, 2011: Meeting with Westport Community Schools Building Committee

Pinck & Co & EnviroScience meet with School Building Committee to discuss latest round of PCB test results and discuss next steps. EnviroScience authorized to proceed with Interior material sampling to try to determine the additional sources of interior PCB contamination and to take additional interior wipe tests in random locations on horizontal surfaces with accumulations of dust.

June 27 to July 5, 2011 Sampling of Possible Interior Source Materials and Wipe Tests.

EnviroScience takes additional 24 wipe samples and identifies 3 additional source materials containing PCBs higher than EPA regulation. Sampling takes several days and test results take 5 days to come back from the laboratory.

July 6, 2011 Interior Bulk Substrate Materials and Interior Wipe Test Results

Wipe samples at many locations in interior test positive for PCB contamination. PCB's in concentrations higher than EPA guidelines found in:

- Mastic above "tectum" ceiling panels*
- Interior caulking between concrete columns & masonry
- Infill (compressible foam like) material between concrete columns and adjacent wall finishes.

**Materials also contain asbestos*

July 14, 2011 Site Visit with EPA to Review Conditions and Findings

Conduct site walkthrough to establish suggested next steps for addressing PCB source materials and elevated air sample results in order to attempt occupancy.

- EPA suggests pilot project to isolate building materials

July 21-29, 2011 Pilot Project to Remove Select Source PCB Materials

Conduct pilot project to physically remove rather than isolate materials in concurrence with EPA and conduct post remediation air sampling. Resulting air samples below EPA guidance.

August 1-5, 2011 Pricing Development from Two Contractors.

Develop specification and plan for obtaining competitive quotes for conducting removal in entire building prior to September 6, 2011.

August 10, 2011 Bid Awarded to Triumvirate for Work

August 11, 2011 Obtain MassDEP Asbestos Waivers to Allow Start of Project

August 11 to September 6, 2011 Perform PCB Remediation

Work Crews including movers clean and begin preparations to remove 70,000 sf of asbestos and PCB ceiling mastic and over 6,000 LF of PCB caulking. Work involves two shifts 6 days per week with over 100 men and two project monitors. Expedited turnaround times for all samples both Asbestos TEM air samples and PCB samples.

September 8, 2011 School Opens

School opens with a 2 day delay to allow receipt of air samples and maintenance and teachers to prepare classrooms before school start. School opens with 90% usage with air samples meeting EPA guidance.

3 Site Characterization

3.1 Initial Bulk Product Sampling

On May 11, 2011, EnviroScience's representative, Jonathan Hand, collected twelve (12) bulk samples of suspect PCB Bulk Product building materials to be analyzed for PCBs. Sampling involved removal of bulk product materials (source materials), such as window and door caulking and glazing compounds, using hand tools to submit in bulk form to determine PCB content. Tools utilized to collect samples were disposable items and discarded after each individual sample was collected to avoid cross contamination of samples. Each sample was placed in an individual container, labeled, and delivered to laboratory using proper chain of custody. Samples were analyzed at Con-Test Analytical Laboratories located in East Longmeadow, MA. Samples were analyzed using EPA Method 3500B/3540C (Soxhlet Region 1) for extraction and analysis of samples using EPA Method 8082.

The USEPA regulates materials containing ≥ 50 ppm. However, if PCBs greater than 1 ppm are present in a material, it must be demonstrated (proven) that the materials containing < 50 ppm PCBs are an "Excluded PCB Product", which for this circumstance would be a product legally manufactured or used prior to October 1, 1984.

The following table identifies the collected samples on May 11, 2011 by location, material type, and sample number.

TABLE 1
Sampling and Analysis Results for PCB Bulk Products Samples
May 11, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Room 264 (C1, C2),	Interior Window Glazing Compound	511JH-C1A	76 (Aroclor 1254)
Cafeteria (B7, C3, C7)	Interior Window Glazing Compound	511JH-C1B	80 (Aroclor 1254)

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Room 124 (B2, B3)	Interior Window Glazing Compound	511JH-C1C	16 (Aroclor 1254)
Doors to exterior near Room 122	Interior Door Caulking	0511JH-C2A	1,500 (Aroclor 1254)
Doors to exterior Main Entrance	Interior Door Caulking	0511JH-C2B	19 (Aroclor 1254)
Doors to exterior near Room 166	Interior Door Caulking	0511JH-C2C	1,200 (Aroclor 1254)
Doors to exterior near Room 122	Exterior Door Caulking	0511JH-C3A	180,000 (Aroclor 1254)
Doors to exterior Main Entrance	Exterior Door Caulking	0511JH-C3B	110 (Aroclor 1254)
Doors to exterior near Room 166	Exterior Door Caulking	0511JH-C3C	240,000 (Aroclor 1254)
Exterior Side C1, C4 Window	Exterior Window Caulking	0511JH-C4A	270,000 (Aroclor 1254)
Exterior Side A1, A4 Window	Exterior Window Caulking	0511JH-C4B	190,000 (Aroclor 1254)
Exterior Side B4, B7 Window	Exterior Window Caulking	0511JH-C4C	230,000 (Aroclor 1254)

The materials sampled were determined to contain PCBs at regulated concentrations based on the limited representative samples collected. Refer to full inspection report for laboratory analysis results included in **Appendix A**.

EnviroScience performed testing for PCBs and the results identified PCBs at concentrations above EPA threshold of 50 ppm. The results with the exception of two of the twelve samples collected exceeded 50 ppm. It should be noted that the two results containing less than 50 ppm were likely a result of maintenance activity which could have removed original caulking or glazing compound containing greater than 50 ppm as PCBs were present in both materials but < 50 ppm. Therefore an "exclusion" for these materials was not sought and all window and door systems were included in proposed remediation.

The results indicated both interior and exterior materials associated with windows and door systems contain PCBs. The next step prior to development of a scope of required remediation work was to characterize adjacent surfaces. This included conducting sampling of adjacent masonry, soil and dust associated with the site.

Since a regulated source of PCBs was identified, based on results for interior window glazing compounds, interior door caulking, exterior door caulking, and exterior window caulking; a determination of potential contamination as an evaluation of potential remediation wastes was required.

The following surfaces were evaluated to determine extent of PCB contamination of adjacent surfaces:

- adjacent masonry surfaces at interior side of door systems
- adjacent masonry surfaces at exterior side of door systems
- adjacent masonry surfaces at exterior side of window systems
- asphalt and concrete sidewalks adjacent to doors
- exterior soil
- collection of wipe samples on interior window sills and floors

3.2 Sampling of Adjacent Substrate Materials

On June 7 and 8, 2011, EnviroScience's representative, Jonathan Hand and Dustin Diedricksen, collected twenty six (26) bulk samples of building materials adjacent to identified PCB Bulk Product Waste. The sampling of potential PCB Remediation Waste was conducted in support of proposed window and door replacement project in preparation for development of a Risk Based Disposal Plan to be filed with EPA. EnviroScience collected samples of substrate building materials that were in direct contact with identified PCB Bulk Product Waste materials (e.g. brick and concrete) to satisfy the EPA testing requirements. We collected samples of substrate materials at specified depths for each substrate material. Substrate materials associated with exterior window caulking included brick masonry and concrete columns and beams. Substrate materials associated with door systems for both interior and exterior caulking included brick masonry, interior brick, concrete columns, concrete beams, and concrete sidewalks beneath door systems.

Each of the identified substrates was sampled from 0" - 1/2" depths at each representative location. In addition, at brick substrates an additional sample was collected at a depth of 1/2" - 1" for the representative locations totaling 26 samples. Samples were collected utilizing a coring drill to sample substrate adjacent to existing caulking joints. The core drilling procedure utilized was modeled after EPA Guidance for field sampling of concrete.

Discreet samples were collected of substrate building materials. Care was exercised to ensure sampling equipment was decontaminated between sample collection using hexane wash and rinse to avoid cross contamination of samples. Samples were placed in containers for transport to laboratory using proper chain of custody. Samples were analyzed using EPA Method 3500B/3540C (Soxhlet Region 1) for extraction and analysis of samples using EPA Method 8082.

TABLE 2
Sampling and Analysis Results
for Potential PCB Remediation Waste Substrate Materials
June 7, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Exterior Window at Room 121	Exterior Window Jamb – Brick 0 – 1/2" Depth	607JH-C-01A	3.4 (Aroclor 1254)
Exterior Window at Room 121	Exterior Window Jamb – Brick 1/2 – 1" Depth	607JH-C-01B	3.4 (Aroclor 1254)

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Exterior Window at Room 121	Exterior Window sill – Brick 0 – ½” depth	607JH-C-01C	0.13 (Aroclor 1254)
Exterior Window at Room 121	Exterior Window Sill– Brick ½ - 1” Depth	607JH-C-01D	0.17 (Aroclor 1254)
Exterior Window at Room 121	Exterior window Header – Concrete Beam 0 – ½” Depth	607JH-C-01E	0.38 (Aroclor 1248) 0.57 (Aroclor 1254)
Exterior Window at Girls’ Locker Room	Exterior Window Jamb – Brick 0 – ½” depth	607JH-C-02A	4.3 (Aroclor 1254)
Exterior Window at Girls’ Locker Room	Exterior Window Jamb – Brick ½ - 1” Depth	607JH-C-02B	0.47 (Aroclor 1248) 0.67 (Aroclor 1254)
Exterior Window at Girls’ Locker Room	Exterior Window Sill – Brick 0 – ½” Depth	607JH-C-02C	17 (Aroclor 1254)
Exterior Window at Girls’ Locker Room	Exterior Window Sill– Brick ½ - 1” depth	607JH-C-02D	0.33 (Aroclor 1254)
Exterior Window at Girls’ Locker Room	Exterior Window Header – Concrete Beam 0 – ½” Depth	607JH-C-02E	0.22 (Aroclor 1248) 0.26 (Aroclor 1254)
Exterior Door at Gymnasium Ramp	Exterior Door Header – Concrete Beam 0 - ½” Depth	607JH-C-03	4.1 (Aroclor 1254)
Exterior Window at Room 166	Exterior Window Jamb – Brick 0 – ½” Depth	607JH-C-04A	39 (Aroclor 1254)
Exterior Window at Room 166	Exterior Window Jamb – Brick ½ - 1” Depth	607JH-C-04B	0.40 (Aroclor 1248) 0.73 (Aroclor 1254)
Exterior Window at Room 166	Exterior Window Sill – Brick 0 – ½” Depth	607JH-C-04C	3.2 (Aroclor 1254)
Exterior Window at Room 166	Exterior Window Sill– Brick ½ - 1” Depth	607JH-C-04D	1.7 (Aroclor 1254)
Exterior Window at Room 166	Exterior Window Header – Concrete Beam 0 – ½” Depth	607JH-C-04E	0.41 (Aroclor 1248) 0.63 (Aroclor 1254)
Exterior Window at Room 283 (2 nd Floor)	Exterior Window Jamb – Brick 0 – ½” Depth	607JH-C-05A	0.20 (Aroclor 1254)
Exterior Window at Room 283 (2 nd Floor)	Exterior Window Jamb – Brick ½ - 1” Depth	607JH-C-05B	0.33 (Aroclor 1254)
Exterior Window at Room 283 (2nd Floor)	Exterior Window Sill – Brick 0 – ½” Depth	607JH-C-05C	28 (Aroclor 1254)
Exterior Window at Room 283 (2nd Floor)	Exterior Window Sill– Brick ½ - 1” Depth	607JH-C-05D	1.4 (Aroclor 1254)
Exterior Window at Room 283 (2nd Floor)	Exterior Window Header – Concrete Beam 0 – ½” Depth	607JH-C-05E	11 (Aroclor 1254)
Exterior Door at Entrance near Room 166	Exterior Door Jamb – Brick 0 – ½” Depth	607JH-C-06A	0.12 (Aroclor 1254)

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Exterior Door at Entrance near Room 166	Exterior Door Jamb – Brick ½ - 1" Depth	607JH-C-06B	2.6 (Aroclor 1248) 2.3 (Aroclor 1254)
Exterior Concrete Walk (Below Door) at Entrance near Room 166	Exterior Walkway Concrete Beam 0 – ½" Depth	607JH-C-07	3.5 (Aroclor 1254)
Interior Door at Entrance near Room 166	Interior Door Jamb – Brick 0 – ½" Depth	607JH-C-08A	0.95 (Aroclor 1248) 0.97 (Aroclor 1254)
Interior Door at Entrance near Room 166	Interior Door Jamb – Brick ½ - 1" Depth	607JH-C-08B	2.9 (Aroclor 1248) 2.3 (Aroclor 1254)

Note: Results in bold text in Table 2 exceed proposed clean-up standard for "high occupancy" use building for soil as Bulk PCB Remediation Waste.

The materials sampled were determined to contain PCBs within substrates. A proposed clean-up standard for the Westport Middle School was recommended at "high occupancy" use which would require adjacent substrates to be remediated to a clean-up standard of ≤ 1 ppm for unrestricted use in accordance with requirements of 40 CFR Part 761.61 (a)(4)(i). Refer to **Appendix B** for the substrate laboratory analysis results and chains of custody.

EnviroScience performed testing for PCBs and the results identified PCBs at concentrations above EPA clean-up standard of ≤ 1 ppm for a "high occupancy" use building at many substrate locations. The determination of PCBs exceeding 1 ppm in adjacent concrete beams and columns would preclude from remediation methods of substrate removal due to engineers recommendations that substrates not be removed. Proposed remediation methods of encapsulation would be required by methods of a Risk-Based Disposal plan with EPA in accordance with 40 CFR Part 761.61 (c). In order to demonstrate no unreasonable risk, wipe, soil, and air samples were also collected.

A "high occupancy" use is defined by EPA in regulation 40 CFR Part 761.3 means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more (an average of 16.8 hours or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school class room, a cafeteria in an industrial facility, a control room, and a work station at an assembly line.

3.3 Sampling of Adjacent Soil

EnviroScience collected soil samples at the exterior perimeter of the building. Soil samples were collected adjacent to exterior masonry walls (i.e. at drip-line) at depths of 0" – ½" at 21 locations. Additional soil samples were collected at 4" depth at exact drip-line locations, and 5' from exterior masonry walls and perpendicular to the aforementioned drip-line samples (0" – ½" depth). Sample locations were approximately 10' apart

(minimum 2 locations per building side) and three soil samples were collected at each of the 21 locations described herein.

A total of 63 soil samples were collected to appropriately identify extent of potential PCB contamination of soil. All (21) surficial samples collected at drip-line were analyzed at laboratory with instruction to hold additional two samples within set (i.e. 4" at drip-line; 0 – 1/2" at 5' distance). Those locations having surface samples with PCB content greater than 1.0 ppm are recommended for further analyses to determine extent of contamination.

TABLE 3
Sampling and Analysis Results for PCB Soil Samples
June 6, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Outside Room 104 (A Side)	Soil	606JH-S-01A	0.78 (Aroclor 1254)
Outside Room 105	Soil	606JH-S-02A	0.68 (Aroclor 1254)
Outside Room 110	Soil	606JH-S-03A	0.78 (Aroclor 1254)
Outside Room 112	Soil	606JH-S-04A	0.59 (Aroclor 1254)
Outside Room 116	Soil	606JH-S-05A	1.0 (Aroclor 1254)
Outside Room 121	Soil	606JH-S-06A	0.65 (Aroclor 1254)
Outside Room 122	Soil	606JH-S-07A	0.52 (Aroclor 1254)
Outside Room 125	Soil	606JH-S-08A	0.69 (Aroclor 1254)
Outside Girls' Locker Room (B Side)	Soil	606JH-S-09A	0.24 (Aroclor 1254)
Outside Girls' Locker Room (B Side)	Soil	606JH-S-10A	0.77 (Aroclor 1254)
Outside Girls' Locker Room (C Side)	Soil	606JH-S-11A	0.63 (Aroclor 1254)
Outside Boys' Locker Room	Soil	606JH-S-12A	0.32 (Aroclor 1254)
Outside Room 154	Soil	606JH-S-13A	0.91 (Aroclor 1254)
Outside Room 163	Soil	606JH-S-14A	0.82 (Aroclor 1254)
Outside Room 166 (C Side)	Soil	606JH-S-15A	1.2 (Aroclor 1254)
Outside Room 166 (D Side)	Soil	606JH-S-16A	0.99 (Aroclor 1254)
Outside Room 168	Soil	606JH-S-17A	0.35 (Aroclor 1254)
Outside Room 172	Soil	606JH-S-18A	2.3 (Aroclor 1254)
Outside Room 176	Soil	606JH-S-19A	2.1 (Aroclor 1254)
Outside Room 101	Soil	606JH-S-20A	0.38 (Aroclor 1254)
Outside Room 104 (D Side)	Soil	606JH-S-21A	0.18 (Aroclor 1254)

Note: Results in bold text in Table 3 exceed proposed clean-up standard for "high occupancy" use building for soil as Bulk PCB Remediation Waste.

A total of 21 samples of soil were analyzed as surficial soil samples at perimeter at depths of 0-1/2". A proposed clean-up standard for the Westport Middle School was recommended at "high occupancy" use which would require soil to be remediated to a clean-up standard of ≤ 1 ppm for unrestricted use in accordance with requirements of 40 CFR Part 761.61 (a)(4)(i). Refer to **Appendix C** for soil laboratory analysis results.

EnviroScience performed testing for PCBs in soil and the results identified PCBs at concentrations above EPA clean-up standard of ≤ 1 ppm for a "high occupancy" use building at six soil locations. Additional soil sampling will be required at depth of 4 inches and a distance of five feet from building to determine extent of remediation required. This testing will be a future phase of work during plan preparations for remediation.

3.4 Wipe Sampling of Settled Dust

Hexane wipe samples were collected in accordance with methods in consultation with 40 CFR §761Sub-Part P. Sufficient sample size was collected to ensure a detection limit that allows quantification of the data relative to the EPA action concentration of ≤ 1 $\mu\text{g}/100\text{ cm}^2$.

Twenty (20) PCB wipe samples were collected on interior floors (non-porous) and interior window sills (porous) below window systems within the school building. Each wipe sample was sealed in 4 oz. glass jar, properly labeled, and chain of custody was filled out and sent to Con-test Analytical Laboratory in East Long Meadow, MA for analysis by a modified EPA method 8270C.

TABLE 4
Sampling and Analysis Results for PCB Wipe Samples
June 8, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT ($\mu\text{g}/\text{wipe}$)
Non-porous Floor Surfaces			
Stair 123	Surface Wipe at Floor	608JH-W-01	110 (Aroclor 1254)
Room 124	Surface Wipe at Floor	608JH-W-04	0.21 (Aroclor 1254)
Girls' Locker Room	Surface Wipe at Floor	608JH-W-05	0.53 (Aroclor 1254)
Room 164	Surface Wipe at Floor	608JH-W-07	0.54 (Aroclor 1254)
Stair 165	Surface Wipe at Floor	608JH-W-08	8.2 (Aroclor 1254)
Room 101	Surface Wipe at Floor	608JH-W-10	0.71 (Aroclor 1254)
Stair 111	Surface Wipe at Floor	608JH-W-11	55 (Aroclor 1254)
Stair 215	Surface Wipe at Floor	608JH-W-12	1.9 (Aroclor 1254)
Room 268	Surface Wipe at Floor	608JH-W-14	1.3 (Aroclor 1254)
Room 277	Surface Wipe at Floor	608JH-W-16	0.85 (Aroclor 1254)
Cafeteria	Surface Wipe at Floor	608JH-W-18	1.8 (Aroclor 1254)
Room 241	Surface Wipe at Floor	608JH-W-20	1.0 (Aroclor 1254)
Porous Window Sills			
Room 124	Surface Wipe at Window Sill	608JH-W-02	0.76 (Aroclor 1254)
Girls' Locker Room	Surface Wipe at Window Sill	608JH-W-03	0.71 (Aroclor 1254)
Room 164	Surface Wipe at Window Sill	608JH-W-06	0.36 (Aroclor 1254)
Room 101	Surface Wipe at Window Sill	608JH-W-09	None Detected

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (µg/wipe)
Room 268	Surface Wipe at Window Sill	608JH-W-13	1.7 (Aroclor 1254)
Room 277	Surface Wipe at Window Sill	608JH-W-15	0.90 (Aroclor 1254)
Cafeteria	Surface Wipe at Window Sill	608JH-W-17	2.5 (Aroclor 1254)
Room 241	Surface Wipe at Window Sill	608JH-W-19	0.33 (Aroclor 1254)

Note: Results in bold text in Table 4 exceed proposed clean-up standard for "high occupancy" school use building for wipe $\leq 1 \mu\text{g}/100 \text{ cm}^2$.

Twelve PCB wipe samples were collected on interior floors (non-porous) and eight PCB wipes were collected on interior window sills (porous) below window systems within the school building. Seven of the twelve wipes (58%) on representative floors exceeded standard of $\leq 1 \mu\text{g}/100 \text{ cm}^2$ for floors. Two of the eight wipes (25%) on representative window sills exceeded standard of $\leq 1 \mu\text{g}/100 \text{ cm}^2$. Refer to **Appendix D** for initial wipe sample laboratory analysis results and chains of custody.

4 Initial Indoor Air Sampling for PCBs

Based on the detection of PCBs in the school window and door caulking and window glazing compounds at concentrations that were greater than 50 ppm and in response to concern for the public health of school students and staff, WCS and the WPSC for Westport in adherence with published recommendations of the EPA, requested that sampling/analysis of the indoor air for PCBs be performed.

To evaluate potential impact to indoor air from the detected PCBs, EnviroScience was requested to conduct indoor air sampling from representative locations within the school building. Sampling was performed at both upper and lower level rooms that were scheduled for window replacement.

4.1 Indoor Air Sampling and Results

Fourteen (14) PCB air samples were collected on June 7, 2011 in accordance with EPA Method TO-10A. Sufficient sample volume of 500 L of air was collected on sample media for homolog analysis. This use of homolog analysis allowed quantification of data relative to EPA advisory concentration of 300 ng/m³ for children ages 6 to 12 and 450 ng/m³ for faculty and staff at 19 plus years (adults) in the school. Quality assurance and quality control (QA/QC) samples, including one duplicate and one blank, were also obtained. The samples were collected following EPA Method TO-10A procedures using low flow air sampling pumps and polyurethane foam traps (PUF tubes), over a duration of approximately 100 minutes at flow rates of approximately 4-5 liters per minute (for a total volume of approximately 0.5 cubic meters).

Selection of PCB air sampling locations within school building included highly sensitive receptor locations (e.g. classroom locations) representative of each floor. Focus of selected locations also included rooms having windows where known PCB Bulk Product Waste materials were present. During the indoor air sampling, conditions that are typically present within the school when the students are present, (E.g. doors closed, unit ventilators and other HVAC systems in operation) were observed. The initial air sampling was performed immediately upon dismissal of students for the day. It should be noted that indoor air samples were collected prior to any sampling of adjacent substrates, soil, or wipe sampling which would impact potential PCB

containing materials. The samples were submitted for PCB homolog analysis (modified 8270C) to Con-test Analytical Laboratory in East Long Meadow, MA.

Fourteen specific locations were sampled for indoor air. Eight of the fourteen indoor air samples (57%) from representative locations met or exceeded the standard of 300 ng/m³ for indoor air. All but two of the collected samples exceeded 50% of the maximum allowable standard. Refer to Table 5 for summary of results. Refer to *Appendix E* for initial air sample laboratory analysis results and chain of custody.

Based on the discovery of PCBs within indoor air which met or exceeded the EPA advisory concentrations for school age children ages 6 to <12 for indoor air, it was considered that additional sources within the building may contain PCBs. The EPA Region 1 Coordinator was immediately notified of the results of indoor air samples and was also of the opinion that additional likely sources of PCBs should be investigated.

The school Superintendent for WCS, also requested that additional random wipe samples be collected throughout the school on furniture etc., to determine if based on such elevated concentrations of PCBs within the indoor air, that surfaces within the building had PCB contamination. An investigation for additional PCB sources (PCB Bulk Products) and additional wipe sampling was performed per request on June 27th and June 29th.

TABLE 5
Sampling and Analysis Results for PCB Indoor Air Samples
June 7, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (ng/m ³)
Cafeteria	Indoor Air Sample	67DD-AIR-01	410
Room 212	Indoor Air Sample	67DD-AIR-02	940
Room 227	Indoor Air Sample	67DD-AIR-03	620
Room 241	Indoor Air Sample	67DD-AIR-04	300
Room 252 (Library)	Indoor Air Sample	67DD-AIR-05	890
Room 264	Indoor Air Sample	67DD-AIR-06	990
Room 277	Indoor Air Sample	67DD-AIR-07	360
Room 154	Indoor Air Sample	67DD-AIR-08	230
Room 164	Indoor Air Sample	67DD-AIR-09	170
Room 164 (Duplicate)	Indoor Air Sample	67DD-AIR-10	240
Room 101	Indoor Air Sample	67DD-AIR-11	520
Girls' Locker Room	Indoor Air Sample	67DD-AIR-12	110
Room 124	Indoor Air Sample	67DD-AIR-13	ND
Room 110	Indoor Air Sample	67DD-AIR-14	220
Room 118	Indoor Air Sample	67DD-AIR-15	230
Blank Sample	Indoor Air Sample	67DD-AIR-16	ND

Note: Results in bold text in Table 5 meet or exceed EPA indoor air advisory concentration of 300 ng/m³ for ages 6 to <12 years of age.

ND –None Detected

The school was not in session upon receipt of the indoor air sample analysis results and a re-location plan was not required for student population. The Superintendent for WCS, re-located all teacher and office staff from

the building to other locations and did not allow any summer programming to occur within the building upon determination of indoor air results. The information for indoor air testing as well as identification of PCBs in bulk products was transmitted to the EPA Region 1 coordinator via telephone call and e-mail on June 24, 2011 after the information was presented to the WPSC Committee meeting on June 23, 2011. The EPA Region 1 coordinator recommended proceeding with attempts to identify interior source of PCB Bulk Product Materials due to elevated concentrations of PCBs in indoor air within the building.

5 Supplemental Wipe and Bulk Sampling

5.1 Wipe Sampling of Settled Dust

Sampling was performed on June 27, 2011 and a total of 24 additional hexane wipe samples were collected of visible settled dust on less actively cleaned surfaces within the building. These surfaces included the top of book shelves, top of lockers, fire alarm panels, behind concrete columns, and other horizontal surfaces.

Wipe samples were collected in accordance with methods in consultation with 40 CFR §761Sub-Part P. Sufficient sample size was collected to ensure a detection limit that allows quantification of the data relative to the EPA action concentration of $\leq 1 \mu\text{g}/100 \text{ cm}^2$ ($0.01 \mu\text{g}/\text{cm}^2$). Each wipe sample was sealed in 4 oz. glass jar, properly labeled, and chain of custody was filled out and sent to Con-test Analytical Laboratory in East Long Meadow, MA for analysis by a modified EPA method 8270C.

TABLE 6
Sampling and Analysis Results for Additional PCB Wipe Samples
June 27, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT ($\mu\text{g}/\text{wipe}$)
Samples Collected by Inspector John Coletti			
Kitchen Area on Microwave Oven Top	Surface Wipe	627-JAC-11	0.71 (Aroclor 1254)
Kitchen Area on Paper Towel Dispenser Top	Surface Wipe	627-JAC-12	0.54 (Aroclor 1254)
Cafeteria Top of Black Fire Alarm Box	Surface Wipe	627-JAC-13	1.6 (Aroclor 1254)
Cafeteria Right Wall Ledge Near Office Area	Surface Wipe	627-JAC-14	1.4 (Aroclor 1254)
Guidance Office (Room 227) Black Book Shelf Top	Surface Wipe	627-JAC-15	0.46 (Aroclor 1254)
Guidance Office (Room 227) Tan File Cabinet Top	Surface Wipe	627-JAC-16	2.4 (Aroclor 1254)
Hallway Area Near Room 249 on Top of Black Fire Alarm Box	Surface Wipe	627-JAC-17	1.6 (Aroclor 1254)

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (µg/wipe)
Hallway Area Near Room 249 on Floor Behind Concrete Column	Surface Wipe on floor	627-JAC-18	3.1 (Aroclor 1254)
Media Center Book Shelf Top	Surface Wipe	627-JAC-19	2.4 (Aroclor 1254)
Media Center Book Shelf Top	Surface Wipe	627-JAC-20	3.1 (Aroclor 1254)
Hallway Area Near Room 274 on Top of Black Fire Alarm Box	Surface Wipe	627-JAC-21	0.22 (Aroclor 1254)
Hallway Floor Near Room 274	Surface Wipe	627-JAC-22	2.8 (Aroclor 1254)
Band Back Green Room on Top of Shelf	Surface Wipe	627-JAC-23	ND
Band Room – Wood Cabinet Top	Surface Wipe	627-JAC-24	0.62 (Aroclor 1254)
Boys Locker Room on Top of Shelf	Surface Wipe	627-JAC-25	ND
Boys Locker Room Rear Corner Floor	Surface Wipe	627-JAC-26	0.70 (Aroclor 1254)
Room 120 Top of Black Book Shelf	Surface Wipe	627-JAC-27	0.39 (Aroclor 1254)
Room 120 Back Floor Area	Surface Wipe	627-JAC-28	0.64 (Aroclor 1254)
Samples Collected by Inspector Robert May			
Lower Level Classroom 108, Counter Top	Surface Wipe	0627RM-24	ND
Lower Level Black Fire Box Top	Surface Wipe	0627RM-25	0.33 (Aroclor 1254)
Lower Level Classroom 171, Top of Storage Cabinet	Surface Wipe	0627RM-26	ND
Lower Level Hallway Outside of Classroom 171 on Top of Sloped Lockers	Surface Wipe	0627RM-27	ND
Lower Level Classroom 166, Storage Cabinet Top	Surface Wipe	0627RM-28	0.76 (Aroclor 1254)
Lower Level Classroom 167, File Cabinet Top	Surface Wipe	0627RM-29	0.39 (Aroclor 1254)

Note: Results in bold text in Table 6 exceed proposed clean-up standard for "high occupancy" school use building for wipe ≤ 1 µg/100 cm².

A total of 8 of the 24 samples (33%) exceeded a concentration of $\leq 1 \mu\text{g}/100 \text{ cm}^2$. The range of samples was ND to a high of 3.1 microgram per wipe. This additional information identified that PCBs were present in the building and not just associated with windows and doors which also led to conclusion that additional interior sources of PCBs were present. Refer to **Appendix F** for additional wipe sample laboratory analysis results and chain of custody on June 27, 2011.

5.2 Bulk Sampling of Additional Bulk Products

On June 27 and 29, 2011, EnviroScience's representative, Robert May, collected nine (9) bulk samples of suspect PCB Bulk Product building materials to be analyzed for PCBs. Sampling involved removal of bulk product materials (source materials), using hand tools to submit in bulk form to determine PCB content. Tools utilized to collect samples were disposable items and discarded after each individual sample was collected to avoid cross contamination of samples. Each sample was placed in an individual container, labeled, and delivered to laboratory using proper chain of custody. Samples were analyzed at Con-Test Analytical Laboratories located in East Longmeadow, MA. Samples were analyzed using EPA Method 3500B/3540C (Soxhlet Region 1) for extraction and analysis of samples using EPA Method 8082. Refer to Table 7 for analytical results of all PCB bulk samples.

The following table identifies the collected samples by location, material type, and sample number.

TABLE 7
Additional Sampling and Analysis Results for PCB Bulk Product Samples
June 27 and June 29, 2011

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Room 104 Ceiling	Mastic adhesive above "tectum" ceiling panels	0627RM-30	64 (Aroclor 1254)
Room 104 Ceiling	Mastic adhesive above "tectum" ceiling panels	0627RM-31	73 (Aroclor 1254)
Exterior, unit ventilator	White joint filler, appears as caulking	0629RM-01	ND
Exterior, unit ventilator air intake on roof for Cafeteria	Homasote insulation inside air intake duct	0629RM-02	11 (Aroclor 1254)
Exterior, unit ventilator air intake on roof for Media Center	Homasote insulation inside air intake duct	0629RM-03	10 (Aroclor 1254)
Room 265 Closet Area	"tectum" ceiling panels	0629RM-04	ND
Room 265 Closet Area	Mastic adhesive above "tectum" ceiling panels	0629RM-05	15 (Aroclor 1248)
Cafeteria	Caulking at concrete column interior	0629RM-06	2,900 (Aroclor 1254) 5,500 (Aroclor 1254)

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Room 154 Concrete column	Filler foam between interior concrete column/beams and interior plaster walls	0629RM-07	56 (Aroclor 1254)

Identified suspect materials included locations of interior caulking at columns, a foam filler at concrete beams and columns, mastic/felt above tectum ceiling panels, white plaster material at air intake at unit ventilators, and homasote insulation at roof air intake ducts. Of the sampled materials regulated concentrations of PCBs above 50 ppm were identified associated with interior caulking at columns, the foam filler at concrete beams and columns, mastic/felt above "tectum" ceiling panels. The significant sources of PCB Bulk Product included more than 70,000 square feet of ceiling mastic and caulking both interior and exterior to the building. Refer to **Appendix G** for additional bulk sample laboratory analysis results and chain of custody on June 27 and 29, 2011.



Interior Caulking



Interior Showing Tectum Ceilings and Overhead Unit Ventilators in Cafeteria



Interior Showing Tectum Ceilings and Overhead Unit Ventilators in Classroom



**Interior Showing PCB Mastic above Tectum Ceilings
(note location where tectum removed and drop ceiling present)**



**Interior Showing Tectum Ceilings at location of beam
where removed in lower level**



Exterior Showing Roof and open roof top air intake



Exterior Showing close view of air intake at roof